

NT5M SERIES DIGITAL ANNOUNCERS

EQUIPMENT DESCRIPTION

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FIGURE

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Customer Information

CAUTION

This equipment generates, uses and can radiate radio frequency energy. If it is not installed and used in accordance with the instructions given in this section, it may cause interference to radio communications. It has been tested for compliance within the limits for Class A computing devices pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user, at his own expense, will be required to take whatever measures may be necessary to correct the interference.

If this equipment is to be connected to standard telephone lines through an interface circuit, or is to be operated as part of a PBX system, this equipment must also comply with part 68 of FCC rules.

NOTE

FCC registration does not express or imply a guarantee of performance.

This equipment complies with Part 68 of the FCC rules. On the rear panel of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. This information is available to all operating entities upon request.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not

exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.

If the Digital Announcer causes harm to the telephone network, the telephone company will notify you in advance. If advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with the Digital Announcer, please contact Northern Telecom, Network Services at 1-800-377-6790 for repair and/or warranty information. If the trouble is causing harm to the telephone network, the telephone company may request you to remove the equipment from the network until the problem is resolved.

The Digital Announcer cannot be used on public coin service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporate commission for information.

The only user-replaceable parts in the Digital Announcer are the rechargeable batteries, some EPROM devices, remote record and line expansion boards, and the fuse. All other maintenance is to be done at Northern Telecom, Network Services Division.

The RJ-11 type jack is applicable USOC.

Customer Information continued on next page

Customer Information (contd)

OEM Devices

The mounting of the registered unit in the final assembly must be made so that the registered unit is isolated from exposure to any hazardous voltages within the assembly. Adequate separation and restraint of cables and cords must be provided.

The circuitry from the registered unit to the telephone line must be provided in wiring that carries no other circuitry than specifically allowed in the rules, such as PR and PC leads. PC board traces carrying tip and ring leads shall have

sufficient spacing to avoid surge breakdown.

The output signal level shall not exceed -9 dBm. If the Digital Announcer is enclosed in an assembly that does not allow ready access, a label shall be displayed on the outside of the cabinet that lists the registration number(s) and RENS of all registered devices contained therein.

The final assembler shall provide, in the consumer instructions, all applicable Exhibit J information.

Canadian Users

NOTICE

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's outside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by the authorized Canadian maintenance facility:

Customer Service Operations
c/o Wesbell Transport
5925 Tomken Rd.
Unit 13-16
Mississauga, Ontario
Canada L4W 4L3

Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION

User should not attempt to make such connection themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100. An alphabetic suffix is also specified in the Load Number for the appropriate ringing type (A or B), if applicable. For example, LN = 20 A designates a Load Number of 20 and an "A" type ringer.

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

1. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product.
3. Unplug this product from the power source before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. Slots and openings in the cabinet and the back or bottom are provided for ventilation, to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on the bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your facility, consult the manufacturer or local power company.
8. For units provided with an Ac adapter)

This product is equipped with a three wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician, to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.
9. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.
10. Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.
11. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
12. To reduce the risk of electric shock, do not disassemble this product, except to replace batteries or program or memory devices (refer to the maintenance procedures, or contact the manufacturer; refer to the last page of this section). Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the appliance is subsequently used.

13. Unplug this product from the wall outlet and refer servicing to qualified personnel under the following conditions:
 - A. When the power supply cord or plug is damaged.
 - B. If liquid has been spilled into the cabinet.
 - C. If the product has been exposed to rain or water.
 - D. If the product does not operate normally by following the operating instructions. Adjust only those controls, that are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
 - E. If the product has been dropped or the cabinet has been damaged.
 - F. If the product exhibits a distinct change in performance.
14. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
15. Do not use the telephone to report a gas leak in the vicinity of the leak.
16. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.
17. Never install telephone wiring during a lightning storm.
18. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
19. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
20. Use caution when installing or modifying telephone lines.

SAVE THESE INSTRUCTIONS

1. GENERAL INFORMATION

OVERVIEW

1.01 The NT5M Series of Digital Announcers (DA) products are designed to provide automatic voice messages(s) over standard telephone lines. The DA may be used as a stand-alone unit, interfaced with other DAs and/or in conjunction with other equipment, such as Central Office, PBX telephone switches, and telephone information centers.

ADVANTAGES

1.02 Because of digital technology, the NT5M Series of DA products provide significant advantages over less sophisticated products. The advantages are:

- (1) Improved audio quality and message lifespan by eliminating drum and tape wear and dirt accumulation.
- (2) Reduced space requirements allowing stand-alone usage.
- (3) Reduced power consumption.
- (4) Reduced maintenance through reduced scheduled maintenance and increased reliability.
- (5) Significant cost reduction because of the items just listed.

1.03 The DA has a number of options and user selectable features which provide configurations for a wide range of applications. These options are discussed in greater detail in paragraph 3, Product Description; page 9.

1.04 References

060-NT5M-210	NT5M Series Digital Announcer Installation Procedures
060-NT5M-310	NT5M Series Digital Announcer Operating Procedures
060-NT5M-410	NT5M Series Digital Announcer Maintenance Procedures

For additional information, contact:

Northern Telecom
 Network Services Division
 4001 East Chapel Hill - Nelson Hwy.
 Research Triangle Park, NC 27709-13010 USA
 Telephone (Customer Service) 1-(800)-377-6790
 Telephone (Technical Support) 1-(800)-527-0797

2. PURPOSE OF EQUIPMENT

INTENDED USES

- 2.01 The DA is the functional equivalent of the electromechanical announcers frequently used for audio intercept messages, for instance, all lines are busy, a telephone number has changed, or no service is available after regular office hours. The DA may be used as a direct drop-in replacement for existing drum, tape, or cassette type devices.
- 2.02 The DA lends itself well to original equipment applications which require repetition of the same message.

INTERFACE REQUIREMENTS

- 2.03 The DA may be directly connected to other equipment. The manner in which the DA is connected depends on the options selected.
- Line connection: RJ-11 jacks
- Trunk connection: either RJ-21 jacks or (with optional kit) wire-wrap terminals may be used.
- 2.04 Specifics concerning the interface of DA equipment are discussed in the installation and option manuals.

3. PRODUCT DESCRIPTION

3.01 The DA consists of a metal cabinet which can be used as is, or may be adapted to rack mounts by a variety of side brackets kits. Digital Announcer configurations are shown in figure 1 on page 10. Location of major assemblies is shown in figure 2 on page 11. The DA IS completely self-contained, requiring only external power, audio Mwd signal connections.

PRODUCT SPECIFICATIONS

3.02 Specifications for the DA vary with the number of features and options selected. The standard DA specifications are detailed in table 1 on page 12. Table 2 on page 14 details the specifications for the unit with installed options. Specifics concerning each of the options available for the DA line of products are contained in documentation for the option.

THEORY OF OPERATION

3.03 Since the operation of the DA is covered in the operating instructions, 060-NT5M-310, only a general overview is presented here. In general, an analog voice announcement is converted to digital data and stored in memory. When the appropriate signals are received from the interface circuits, the message is converted to analog for output to the line requesting the message.

NOTE: The message data can be lost in the event of power failure unless the optional battery back-up is in operation or if the length of the power outage exceeds the capacity of the optional battery backup.

INTERFACE CIRCUIT

3.04 DA options which supply interface to other equipment are described in paragraph 4, page 15, Options.

3.05 The customer may supply interface circuits to the DA. For customer supplied interface circuits, refer to DA specifications. Refer to table 1 on page 12 and table 2 on page 14.

CAUTION: To avoid damage, take care to supply an interface to match the electrical characteristics of the DA with the attached equipment or audio distribution network.

FIRMWARE PROGRAMS

3.06 Operating programs for the DA are contained in EPROMs. These socketed firmware devices can be changed in the field. The program options are detailed in table 3 on page 16; refer to the Operation Guide, section 060-NT5M-310, for implementation and operating instructions. Programs are described in table 4 on page 17. Detailed information is contained in the Maintenance section, 060-NT5M-410.

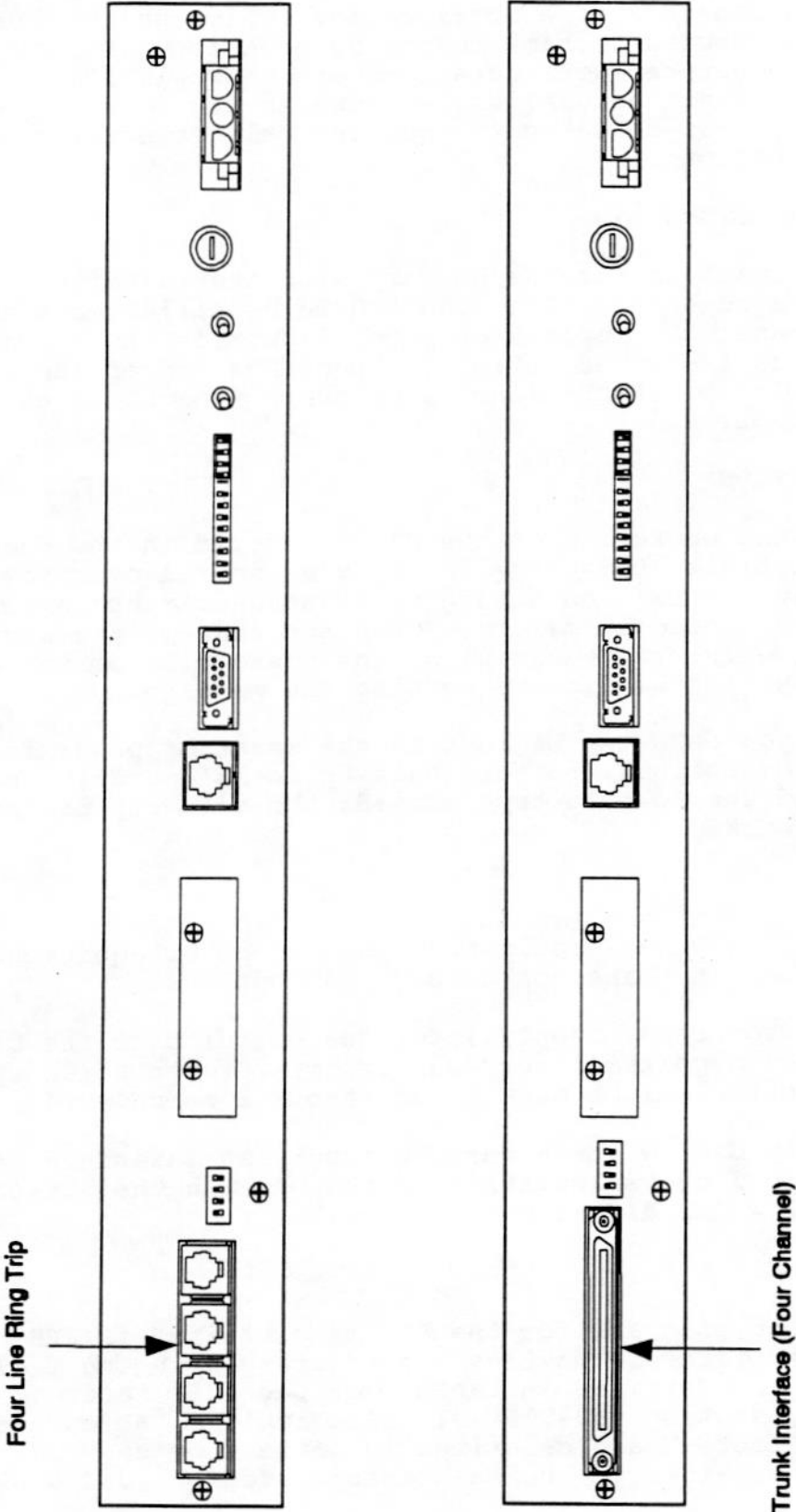


Fig. 1 - Digital Announcer Configurations

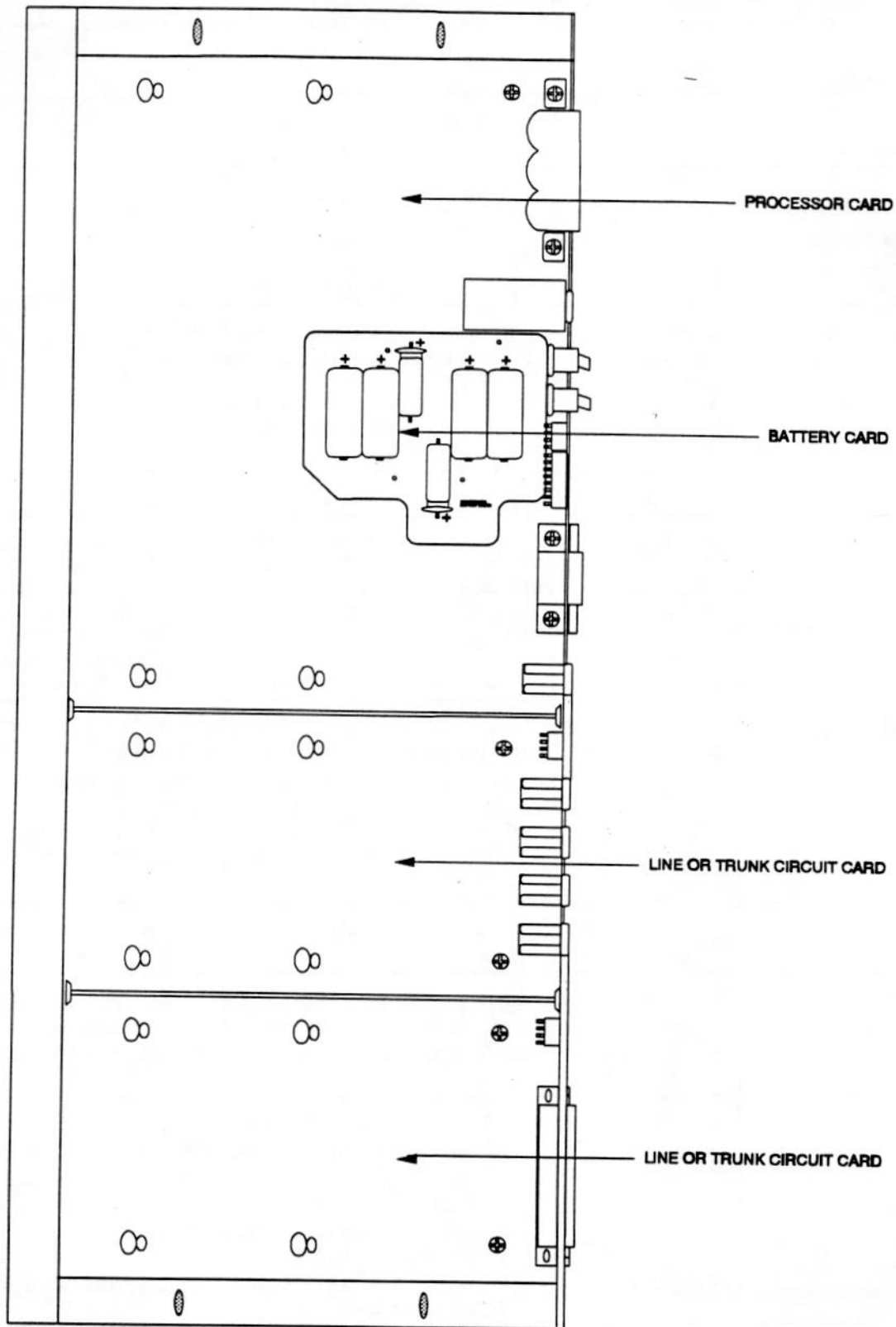


Fig. 2 - Location of Major Digital Annunciator Components

Table 1. Digital Announcer Specifications

CHARACTERISTIC	DESCRIPTION
Power Consumption	-43 to -66 V dc at 400 mA max; approx 20 W at 50 V
Circuit Protection	1 Ampere, 3AG Slow-Blow Fuse
Interconnection	Audio, Power, Control, and Alarm
Environmental	a. 0° to 50° C (32° to 122° x - operating b. -40° to 70° C (-40° to 160° F) - storage c. 10% to 90% Relative Humidity (noncondensing)
Exterior Finish	Black case w/Silver front panel and Black letters, Brown w/White letters, custom ordered
Physical Dimensions	a. Height: 1.75 inches (44.5 mm) b. Width: 17.5 inches (445 mm) c. Depth: 12.0 inches (305 mm)
Weight	5 lbs. (2.26 kg.) approximately
Message Capacity	Defined by Firmware and Memory Options selected
Signal to Noise Ratio	≥45 dB, C message weighted, with 245 mv source at front panel jack into 600 ohm resistive (AGC-off)
Audio Input - nominal	Approximately 245 millivolts AC rms measured at RJ-11 Record/Monitor jack on the front panel;
Audio Output	Trunk - Transformer Coupled Isolated Output at ≥4 ohms Load Impedance. Up to 200 telephone circuits of 900 ohm impedance or up to 150 telephone circuits of 600 ohm. Output Level adjustable to -5 dBm (preset to -10 dBm). Line - transformer coupled balanced output nominal tip-ring output -22 dBm
Frequency Response	≥300 Hz to 3 kHz (+3.5 dB) with 245 mv Input at front panel jack (AGC off)
Harmonic Distortion	≤6% THD (-22 dBm) output into 600 ohm resistive load (line or 4 ohm resistive trunk) measured with -10 dBm, 1 kHz sine wave audio input, with AGC off at 64 KBS
Control Signals	a. 1 Start: -42 to -66 VDC at 10 mA b. 1 C/MC: Form C relay contacts rated 2 A at 50 V dc resistive; pulse width = 250 ms +10 ms c. 1 MBY: Form C relay contacts rated 2 A at 50 V dc resistive d. 1 ALM: Form C relay contacts rated 2 A at 50 V dc resistive
NOTE: Use a Class II power source for all connections to -48 V dc.	

Table continued on next page

Table 1. Digital Announcer Specifications (contd)

CHARACTERISTIC	DESCRIPTION
Memory Size	At 64 Kbs (sampling rate): 30 secs to 4 mins At the 32 Kbs rate: 1 to 8 mins
Compliance	a. FCC (Federal Communication Commission - USA) Class A computing devices pursuant to Subpart J of Part 15 of FCC rules. b. Output power pre-set to -9 dBm per part 68 of FCC rules; trunk circuits c. FCC Registered Product No. AB6USA-65061-VM-N d. UL Recognized Product File No. E106428 e. DOC (Department of Communication - Canada) Product No. AB6USA 65061-VM-N f. CSA (Canadian Standards Association) File No. LR80577

Table 2. Digital Announcer Specifications (with Options)

NOTE: Specifications for units with options installed are the same as units without options installed unless otherwise specified.	
CHARACTERISTIC	DESCRIPTION
Memory Size	At 64 Kbs (sampling rate): 30 secs. to 4 mins At the 32 Kbs rate: 1 to 8 mins
Message Retention - Battery Backup	60 seconds of memory - 1.5 hours, 8 mins - 1.3 hours (measured at 25°, new batteries and full charge)
Control Signals	a. Start: -42 to -66 VDC at 10 mA b. C/MC: Form C relay contacts rated 2 A at 50 Mwdc resistive; pulse width = 250 ms $\pm$ 10 ms c. MBY: Form C relay contacts rated 2 A at 50 V dc resistive d. ALM: Form C relay contacts rated 2 A at 50 V dc resistive
NOTE: Use a Class II power source for all connections to -48 V dc.	
Remote Access	Record and playback (DTMF phone) w/Remote Record option
Telephone Line Interface	Responds to standard telephone line ringing signals (connection via RJ-11 modular jack) with Ring Trip Access option
Ac Line Power	120 V ac operation with Ac Converter accessory
Rack Mounting	EIA, RETMA, or Bell Standard enclosures

4. DIGITAL ANNOUNCER OPTIONS

4.01 Options are available to modify or enhance the operation of the DA. Each option has unique features which are selected by the user to match specific requirements. In some cases, options may be installed as a field retrofit. The features for any given option are determined by switches and program subroutines or other operator action. Each option comes with installation and operating instructions.

MEMORY EXPANSION

4.02 The base unit DA can be expanded to store approximately 8 minutes of announcement time.

RING TRIP/REMOTE RECORD

4.03 The Ring Trip/Remote Record option combines a subscriber line interface with a remote access circuit. Remote Record allows the DA to accept message changes from a Dual Tone Multiple Frequency (DTMF) telephone; trademark names such as Touch Tone*, **Digitone. Programmable access codes provide security against unauthorized message changes. Ring Trip Access matches the DA to a subscriber telephone line as previously described. For more information, refer to the Operation Manual, 060-NT5M-310.

RING TRIP ACCESS - ONE, TWO, OR FOUR LINE

4.04 The Four Line Ring Trip Access option matches the Digital Announcer output characteristics to the subscriber telephone line. This allows the unit to operate as a stand-alone device without the usual dependence on Central Office or PBX Equipment. It has provisions to adjust line impedance, ring count, number of message repetitions, or, barge-in type operations.

DIGITAL ANNOUNCER DISTRIBUTION SYSTEM

4.05 The DA Distribution System allows up to twenty (20) DA channels (maximum of twenty trunks) to be connected to a maximum of 375 audio circuits per connector bank. The connector banks are constructed with Northern Telecom ***BIX™ modular cross-connect wiring blocks, which serve as a termination point between equipment interfaces and DAs. Consult the Northern Telecom Network Services Division for assistance in selecting the Distribution System which best matches your specific application.

4.06 The Distribution System has a built in matching network for each of the audio output pairs to allow direct connection to existing telephone circuits without modification. Control signal wiring for each announcement is also brought out to the terminal blocks. The modular construction of the DA Distribution System permits mounting in standard equipment frames, and easily accommodates future expansion in groups of 25 pairs.

* Touch Tone is a trademark of AT&T

** Digitone is a trademark of Northern Telecom

*** BIX is a trademark of Northern Telecom

Table 3. Firmware Programs - Definitions and Catalog Numbers

CATALOG NUMBER	PROGRAM NAME	DESCRIPTION
NT5M50AA	Basic	One variable length message per channel with each message played out of a separate audio channel. Program works with single-channel or multi-channel DAs.
NT5M50AR	Remote Record	Remote Record allows access from an off-site location for recording, changing, playback and other functions.
NT5M50AC	Multi-channel Synchronous	Provides one fixed length message for each of the channels. Playback for all of the channels is controlled by a start signal received by first channel.
NT5M50AE	Multi-channel Demand Phase Entry	Single message is assigned to each of the channels. Each channel provides a separate start signal and plays the message from the beginning.
NT5M50AG	Multi-channel Fixed Message Length	Message time is divided by the number of channels into equal parts. Each message is played out on a separate channel. Each channel provides a separate start signal.
NT5M50AJ	Split Memory Demand Phase Entry	Two audio announcements are stored in memory, one active and one reserve. The reserve message may be changed while the DA is on-line, even if the active message is in use. Number of output channels is determined by the number of channels in the DA unit, a minimum of two channels must be used with this program.
NT5M50AL	Split Memory Time Phased Entry	Same as Split Memory Demand Phased, except output to audio channels is spaced by $1/n$ (where n is the number of channels in the DA) of the message length. During high call volume periods this allows multiple calls to be grouped together for rapid handling.
NT5M50AN	Split Memory Tape Emulation	Same as Split Memory Demand Phased, but the "busy" relay provides a 2-second "rewind pulse" at the end of the message, to emulate a magnetic tape type announcement machine
NT5M50BE	Multi-User	Same as Multi-Channel Fixed Message Length with the addition of the following features: • new messages can be recorded while the DA is online • when accessed using the remote record port, each channel/message is protected with a separate password. This program also supports extended message storage time.

Table 4. Common Firmware Functions

PROGRAM	DESCRIPTION
Operational Status	Indicates mode of operation, such as, Select, On-Line, and Alarm, on the front panel LED display.
Memory Usage	Displays the amount of available memory (in seconds) and provides a real time count down during recording or playback.
Channel Activity	Displays active audio output channels by number.
Remote Operation	Illuminates a dedicated Remote indicator lamp when DA has accepted the security code and is under remote control.
Fault Diagnostics	Built-In-Test - Alarm indicator illuminates on fault detections.
Peg Count	Displays a running total of message requests; up to 999,999.
Extra Equipment	Allows user to program up to 20 C/MC relay Control Signals/recorded message operations for use as timing references or external device control.
Special Information Tones	Allows the addition of industry standard tone patterns at the beginning of messages for electronic announcement identification; trunks only.

5. ACCESSORIES

CASSETTE ADAPTOR CORD

5.01 The Cassette Adapter Cord has a miniature phone plug and an RJ-11 plug on opposite ends of a 3-foot coiled cord. With this accessory, audio may be taken from an audio cassette player and loaded into a DA without picking up background or ambient noises.

MODIFIED PHONE HANDSET

5.02 The Modified Phone Handset has all of the features of the Standard Handset; including a miniature phone jack and an interconnect cord to permit direct connection to a cassette player or other audio source. The jack automatically disconnects the handset transmitter, allowing recording without noise pickup.

RECHARGEABLE BATTERY PACK

5.03 Rechargeable Batteries can be used to provide memory backup in the DA. The batteries may be replaced without the need for factory service. The battery pack consists of four cells permanently mounted onto a PCB assembly. The board is keyed to prevent incorrect installation.

TELEPHONE MESSAGE CASSETTE

5.04 Standard Telephone Message Cassette has 54 pre-recorded intercept messages of the type frequently used to instruct PBX and Central Office customers. Announcements cover many problems encountered in normal telephone traffic. Each message is recorded twice, one a male voice, the other a female voice.

AC POWER CONVERTOR

5.05 The Ac Power Convertor can provide a source of 48 V dc power when the DA must be operated outside of the telephone equipment environment. The Convertor uses standard (120 V ac) line voltage. It includes EMI/RFI control, automatic over-temperature and over-current protection, and a pre-wired connector.

5.06 The Ac Convertor is a U.L. Listed device and has CSA approval. Each DA used must have an Ac Convertor if line voltage power is used.

MOUNTING

5.07 Mounting Brackets to adapt the DA for use in standard equipment bays, enclosures, or relay racks are itemized in table 6 on page 20. Refer to figure 3 on page 20. Different sizes, shapes and finishes match the brackets to the equipment. A variety of equipment mounts, including Bell standard, RETMA, and EIA Brackets are available to support NT switching equipment such as the SL-1 and DMS product lines, and other manufacturer's equipment. Brackets are reversible and allow flush, protruding, or recessed mounting.

6. ORDERING INFORMATION

6.01 Use the information provided in table 7 on page 21 for ordering NT5Mxxxxxxxxx-type DAs and any additional optional equipment.

Table 5. Digital Announcer Option Kits

CATALOG NUMBER	DESCRIPTION
NT7M03BA	Battery pack replacement
NT5M45AA	One minute memory expansion kit
NT5M45AB	Four minute memory expansion kit; only for use with NT5M50 __, Multi-User firmware
NT5M45BB	Two channel Ring-Trip access kit
NT5M45CB	Two channel trunk access kit
NT5M45BC	Four channel Ring-Trip access kit
NT5M45CC	Four channel trunk access kit
NMwM45DA	Wire-wrap trunk adapter
NT5M45EA	UL Ac converter
NT5M45EB	Power connector kit

Table 6. Mounting Brackets

KIT NUMBER	CHASSIS MOUNTED	RACK WIDTH	HORIZON HOLE CTR	VERTICAL HOLE CTR	LENGTH A	WIDTH B	HEIGHT C
213281-101	Yes	19in 48.26cm	18.25in 46.35cm	1.25in 3.175cm	1.75in 4.445cm	0.62in 1.587cm	1.73in 4.365cm
213281-103	Yes	23.00in 58.42cm	22.25in 56.52cm	1.25in 3.175cm	1.75in 4.445cm	2.62in 6.667cm	1.73in 4.365cm
213281-105	Yes	26.00in 66.03cm	25.00in 63.50cm	1.00in 2.54cm	1.75in 4.445cm	4.12in 10.47cm	1.73in 4.365cm
213281-113	Yes	28.00in 71.12cm	27.75in 69.22cm	1.00in 2.54cm	1.75in 4.445cm	5.17in 13.17cm	1.73in 4.365cm
213281-117	Yes	23.00in 58.42cm	22.25in 56.52cm	1.00in 2.54cm	1.75in 4.445cm	2.62in 6.667cm	1.73in 4.365cm
213281-119	Yes	19.00in 48.26cm	18.50in 47.00cm	1.25in 3.18cm	10.0in 25.4cm	.620in 1.57cm	1.73in 4.365cm
213281-121	No	N/A	N/A	N/A	1.75in 4.445cm	N/A	3.375in 8.573cm
214606	Yes	25.00in 63.49cm	24.25in 63.49cm	1.00in 2.54cm	4.75in 12.06cm	3.70in 9.445cm	1.98in 5.063cm

* An assortment of mounting brackets are available. The brackets fit standard hole spacing for both EIA universal and Bell standard mountings, and are painted black to match the chassis; special finishes may be specified to match the brackets to the customer's equipment; please contact the factory for assistance.

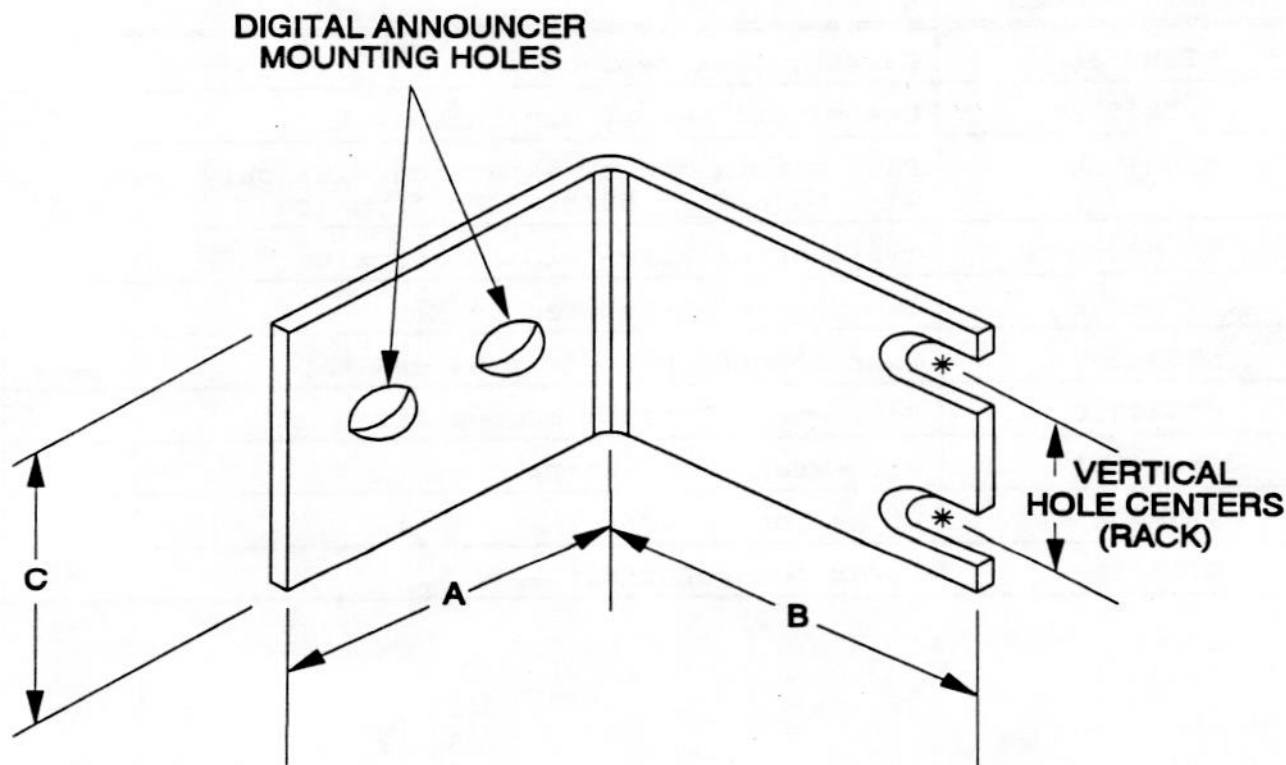


Fig. 3 - Mounting Brackets

PRODUCT WARRANTY

The Digital Announcer is covered by the following manufacturer's limited warranty:

The Network Services Division of Northern Telecom warrants that the products purchased shall, under normal use and service, be free from defective material and faulty workmanship for a period of twelve (12) months from the date of shipment. Northern Telecom's sole obligation, and the Buyer's exclusive remedy under this warranty shall be limited to (at Northern Telecom's option) repair or replacement (on an exchange basis) of the defective product. Such obligation and remedy is conditioned upon (a) Northern Telecom receiving written notice of the defect within the specified warranty period; (b) Buyer receiving authorization from the manufacturer for the return of the defective product, (c) Buyer, at its own expense, returning the product to Northern Telecom, (d) the product not having been altered or repaired by any party other than Northern Telecom, (e) the defect not being the result of mishandling, abuse, misuse, improper storage, installation, maintenance, or operation by other than Northern Telecom (including use in conjunction with equipment which is electrically or mechanically incompatible); and (f) the product not having been damaged by fire, power failure, explosion, Act of God, or any other similar act or occurrence not attributable to Northern Telecom. The repair or replacement of any defective product shall not extend the applicable warranty period.

THE WARRANTY AND REMEDY SET FORTH ABOVE SHALL CONSTITUTE NORTHERN TELECOM'S ONLY WARRANTY WITH RESPECT TO THE PRODUCT AND BUYER'S EXCLUSIVE REMEDY IN THE EVENT SUCH WARRANTY IS BREACHED, AND SHALL BE IN LIEU OF ALL OTHER WARRANTIES, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. NORTHERN TELECOM SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE WHATSOEVER BEFORE OR AFTER SHIPMENT OF ANY PRODUCTS.

Please address any communication concerning this product to:

For additional information, contact:

Northern Telecom
Network Services Division
4001 East Chapel Hill - Nelson Hwy.
Research Triangle Park, NC 27709-13010 USA
Telephone (Customer Service) 1-(800)-377-6790
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Table 7. Digital Announcer Ordering Information

		NT5M	a	b	c	d	e	ff	g	h
aa = Number of Channels _____										
02 = Two Channels										
04 = Four Channels										
06 = Six Channels										
08 = Eight Channels										
b = Interface Type _____										
L = Line (Ring/Trip) Interface										
T = Analog Trunk Interface										
c = Firmware _____										
A = Multi-Channel Basic										
B = Multi-Channel Synchronous										
C = Multi-Channel Demand Phased										
D = Multi-Channel Fixed Length										
E = Split Memory Demand Phased										
F = Split Memory Time Phased										
G = Split Memory Tape Emulation										
M = Multi-User (Remote Record required)										
d = Remote Record _____										
0 = Without Remote Record										
1 = With Remote Record										
e = Battery Backup _____										
0 = Without Battery Backup										
1 = With Battery Backup										
f = Message Time _____										
01 = 1 Minute										
02 = 2 Minutes										
03 = 3 Minutes										
04 = 4 Minutes										
05 = 5 Minutes										
06 = 6 Minutes										
07 = 7 Minutes										
08 = 8 Minutes										
12 = 12 Minutes										
16 = 16 Minutes										
20 = 20 Minutes										
24 = 24 Minutes										
28 = 28 Minutes										
32 = 32 Minutes										
g = Case Finish _____										
1 = Standard										
2 = NT Brown										
3 = Custom										
h = Mounting Brackets _____										
A = None										
B = Table Top Bracket										
C = 19-inch (482.6mm) Meridian PBX										
D = 19-inch (482.6mm)										
E = 23-inch (584.2mm) 1.25-inch (31.75mm) hole spacing										
F = 23-inch (584.2mm) 1.00-inch (25.4mm) hole spacing										
G = 25-inch (635mm) ESS Bracket										
H = 26-inch (660.4mm) DMS Bracket										
K = 28-inch (711.2mm)										
X = Custom										

12:30 → 13:30

Q.0



Information subject to change since Northern Telecom reserves the right, without notice, to make changes in equipment design or components as progress in engineering or manufacturing methods may warrant.

For additional information, contact:

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